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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,947	07/25/2003	Mark Hernandez	MJ-1	2256
21833	7590	01/25/2006	EXAMINER	
PRITZKAU PATENT GROUP, LLC			CINTINS, IVARS C	
993 GAPTER ROAD				
BOULDER, CO 80303			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/627,947	HERNANDEZ ET AL.	
	Examiner	Art Unit	
	Ivars C. Cintins	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 November 2005.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-22, 24-26 and 28-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 26 is/are allowed.
- 6) Claim(s) 1-22, 24, 25 and 28-35 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

<ol style="list-style-type: none"> 1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. 	<ol style="list-style-type: none"> 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____.
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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-22, 24, 25 and 28-35 are again rejected under 35 U.S.C. 103(a) as being unpatentable over the Gruden doctoral thesis, submitted July 2000, entitled "Fate and Toxicity of Aircraft Deicing Fluid Additives Through Anaerobic Digestion" in view of the Reed et al. publication entitled "Metal Adsorption by Activated Carbon: Effect of Complexing Ligands, Competing Adsorbates, Ionic Strength, and Background Electrolyte." As pointed out in the previous Office action, the Gruden thesis discloses removing heavy metals from an industrial waste stream by adding MeBT (methylbenzotriazole) and GAC (granular activated carbon) to the waste stream such that the MeBT simultaneously binds the heavy metals and is adsorbed by the GAC (see page 123). Accordingly, this primary reference discloses the claimed invention with the exception of the pH of the waste stream undergoing treatment, the type of activated carbon employed (claims 6, 9-13), the use of an enclosure for the treatment materials (claims 14, 15 and 29-32), and removing the metal from the resulting composition (claim 25). The Reed et al. publication discloses removing heavy metals such as cadmium and nickel from a solution with a combination of activated carbon and complexing agent, and further teaches that better results are obtained with H-type carbon at an acidic pH (see Figs. 7 and 8 on page 1995). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the recited type of activated carbon in the process of the primary reference, and to further conduct this modified primary reference process at an acidic pH, in view of the teaching by the secondary

reference that such carbon and acidic conditions give excellent results for removing heavy metal ions from a solution. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an enclosure for the treatment materials of the thus modified primary reference, in order to facilitate their handling. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the metals from the spent treatment composition of the modified primary reference, in order to allow the treatment materials in this composition to be reused.

Claim 34 is again rejected under 35 U.S.C. 103(a) as being unpatentable over the EPA publication entitled "Investigation of Selected Potential Environmental Contaminants: Benzotriazoles." As pointed out in the previous Office action, the reference discloses removing heavy metals from waste water with benzotriazoles (see page 81, penultimate paragraph). Accordingly, this reference discloses the claimed invention with the exception of the recited acidic pH. However, since the reference fails to disclose any criticality for the pH of the waste water undergoing treatment, and since this reference gives an example of treating the waste water at a relatively neutral pH (i.e. 7.85), one of ordinary skill in the liquid purification art would have been motivated to treat waste water having a slightly acidic pH (e.g. 6.85) by the reference process. Furthermore, mercury, copper and cadmium are clearly soluble in water at this slightly acidic pH, and this is all that is further required by amended claim 34.

Claim 26 is allowed.

Applicant's arguments filed August 24, 2005 have been noted and carefully considered but are not deemed to be persuasive of patentability. Applicant argues that the Gruden reference, when considered as a whole, is directed to environmental concerns with respect to the presence

of methylbenzotriazole in the runoff from aircraft deicing fluid, and not to the treatment of waste streams. It is pointed out, however, that this reference clearly discloses (page 123) that industrial waste streams may be treated with a combination of MeBT (methylbenzotriazole) and GAC (granular activated carbon); and given this teaching, one of ordinary skill in the liquid purification art would have been motivated to treat a metal cation containing solution of the type recited, as proposed above.

Applicant also argues that the above noted portion of the Gruden reference only relates to removing heavy metals in an anaerobic digester. Again, this argument has been noted and carefully considered, but is not deemed to be persuasive of patentability. It is pointed out that the last sentence on page 123 of the Gruden reference clearly teaches that a combination of MeBT and GAC may be used for treating “other industrial waste streams because MeBT sorbs to GAC while simultaneously binding heavy metals;” and given this teaching, one of ordinary skill in the liquid purification art would have been motivated to treat such other industrial waste streams, as explained above.

Applicant also argues that Reed does not teach the claimed invention because this reference relates to an electrostatic metal removal mechanism. Once again, this argument has been noted and carefully considered, but is not deemed to be persuasive of patentability. It is pointed out that the Reed et al. publication clearly teaches that in a process wherein heavy metals such as cadmium and nickel are removed from a solution with a combination of activated carbon and complexing agent, better results are obtained with H-type carbon at an acidic pH (see Figs. 7 and 8 on page 1995); and given this teaching, one of ordinary skill in the liquid purification art would have been motivated to employ the recited type of activated carbon in the process of the

primary reference, and to further conduct this modified primary reference process at an acidic pH, as proposed above.

With respect to the EPA publication entitled “Investigation of Selected Potential Environmental Contaminants: Benzotriazoles” applied against claim 34, Applicant argues that this reference teaches the use of a very large amount of benzene solvent in combination with benzotriazole, and that there is no reason to assume that the presence of benzene is not critical to the process outcome. Again, this argument has been noted and carefully considered, but is not deemed to be persuasive of patentability. It is pointed out that claim 34 does not preclude the use of benzene in combination with the metal-coordinating compound, i.e. because of the “comprising” language in line 3; and therefore, the fact that the EPA publication treatment process may require the presence of this solvent is not deemed to be relevant, or persuasive of patentability for this claim.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I. Cintins whose telephone number is 571-272-1155. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Duane Smith, can be reached at 571-272-1166.

The centralized facsimile number for the USPTO is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ivars Cintins
Ivars C. Cintins
Primary Examiner
Art Unit 1724

I. Cintins
January 21, 2006